

***Technical Review and the Evaluation of the Application for
Air Quality Permit, Proposed Permit Number 37842***

I. INTRODUCTION

This Class II Synthetic Minor permit is for the operation of a flyash transfer terminal by CTI Leasing, Inc. in Clarkdale, Arizona.

A. Company Information

Mailing Address: P.O. Box 516, Clarkdale, AZ 86324
Facility Address: Cement Plant Road,
Clarkdale, Yavapai County, AZ, 86324

B. Attainment Classification (Source: 40 CFR §81.303)

CTI Leasing, Inc. is in an area that is in attainment for PM₁₀, SO_x, CO, Ozone, and NO_x.

II. PROCESS DESCRIPTION

A. Equipment

The following equipment is covered by permit number 37842:

1. Dust Collector 1, Model 165 3-30B, S/N 79680H1, 321,200 Tons/Year
2. Dust Collector 2, Model 165 3-30B, S/N 79680H2, 321,200 Tons/Year
3. Silo 1, Equipment ID S-1, 275 Ton
4. Silo 2, Equipment ID S-2, 275 Ton
5. Silo 3, Equipment ID S-3, 275 Ton
6. Silo 4, Equipment ID S-4, 275 Ton

B. Process

Flyash is a byproduct produced during the combustion of coal. Various classes of flyash are produced depending on the type of coal used. Flyash is used for construction related applications including for use in cement and concrete production, road base material, and asphalt paving filler. Flyash is delivered to the site via truck and it is loaded pneumatically to one of the four storage silos. Upon demand, the flyash is transferred into the trucks and delivered to CTI customers. The trucks hold approximately 27.5 tons of material each.

Controls

Two dust collectors are used to control particulate emissions during loading and unloading of the flyash to the silos. A locking connection is used to pneumatically transfer flyash between the trucks and silos, preventing loss of product and emissions at the transfer point.

III. EMISSIONS

With controls, this facility does not have the potential to emit more than 100 tons per year of any criteria pollutant.

The emissions calculations for the permit review process relied upon emission factors, drawn from the EPA's Compilation of Air Pollution Emission Factors (A.P. 42) Table 11.12-2. Table 1 depicts the potential to emit (PTE), in tons/year, of the criteria pollutant for the facility.

Table 1: Total Facility Potential to Emit, Point Source Emissions.

Pollutant	Total Facility Potential to Emit (TPY):
PM ₁₀	1.57

IV. APPLICABLE REGULATIONS

The applicable regulations were identified by the agency as part of the application packet. If necessary, the source is required to list any additional regulations that may be applicable. Table 3 below displays the applicable requirements for the equipment under this proposed permit.

Table 3: Verification of Applicable Regulations

Unit	Date of Manufacture	Control Device	Rule	Verification
Silos	Est. 1975	Dust Collector	<u>A.A.C.</u> R18-2-730.A.1.a R18-2-730.D R18-2-730.G R18-2-702.B.2 R18-2-702.B.3	Standards of Performance for Unclassified Sources. This standard is applicable to all dust collectors and silos. Opacity limits.
Fugitive Dust Sources	N/A	Water and other reasonable precautions	<u>A.A.C.</u> Article 6	This Article is applicable to any non-point source of air contaminant.

Unit	Date of Manufacture	Control Device	Rule	Verification
Mobile Sources	N/A	N/A	<u>A.A.C.</u> Article 8	This Article is applicable to mobile sources which either move while emitting air pollutants or are frequently moved during their utilization.
Other Periodic Activity Requirements	N/A	N/A	<u>A.A.C.</u> R18-2-726 R18-2-727 R18-2-1101.A.8	Standards of Performance for Sandblasting Operations, for Spray Painting Operations and for Demolitions/Renovation – Hazardous Air Pollutants (Asbestos)

V. PERIODIC MONITORING AND RECORD KEEPING

Monitoring and Record keeping Requirements for the Dust Collectors

- A. The Permittee must conduct a monthly EPA Reference Method 9 observation of emissions emanating from each dust collector. The Permittee must keep a record of the emission point being observed, name of the observer, date and time of observation, and the results of the observation. If the observation results in an exceedance of the opacity limit, the Permittee must take corrective action and log all such actions. Such exceedances must be reported as excess emissions.
- B. A certified Method 9 observer must conduct one visual survey per day of visible emissions emanating from each dust collector when the company operates the flyash loading system. The Permittee must keep a record of the name of the observer, the date and location on which the observation was made, and the results of the observation.
- C. The Permittee must maintain logs of all maintenance activities performed on the baghouses. These logs must be maintained on-site and shall be readily available to ADEQ representatives upon request.

VI. IMPACTS TO AMBIENT AIR QUALITY

A. Introduction

ADEQ has reviewed an air quality impact analysis (i.e. modeling analysis) submitted by the company to determine the air quality impacts from CTI Leasing, Inc. Flyash unloading and loading and fugitive particulate emissions were considered in the air quality impact analysis.

The purpose of the modeling analysis is to determine whether air quality impacts from proposed criteria pollutant emissions will cause or contribute to a violation of any air quality standard, or worsen an existing air quality problem. Applicable standards include the National Ambient Air Quality Standards (NAAQS).

A modeling analysis was performed to estimate the maximum ambient concentrations of potential PM₁₀ emissions associated with the silo dust collectors, DC-1 and DC-2. The maximum potential PM₁₀ emissions from both sources were combined to obtain a conservative prediction of ambient impacts. To predict the worst case impact, the stack parameters of DC-2 were used. While both sources have the same stack gas velocity and temperature, the stack of DC-2 is half as tall as the stack of DC-1. In addition, DC-1 is located at the height of the silo, while DC-2 is located 20 feet above the silo, making DC-2 more susceptible to downwash. Screening-level dispersion modeling results were compared to applicable Arizona and national ambient air quality standards.

B. Modeling Analysis Overview

Air Quality Model

The impacts of maximum potential emissions were conservatively estimated using the U.S. EPA approved SCREEN3 Model (dated 96043). The SCREEN3 Model is a PC-Compatible program based on revised screening procedures document, *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised*, EPA-450/R-92-019. The document has been incorporated into the EPA's *Guideline on Air Quality Models*.

The SCREEN3 Model was selected for an initial analysis because the silo dust collectors are relatively small emission units. As stated in the *Screening Procedures* document, "The purpose of first applying a simple screening procedure is to conserve resources by eliminating from further analysis those sources that clearly will not cause or contribute to ambient concentrations in excess of short term air quality standards or allowable concentration increments. A relatively large degree of 'conservatism' is incorporated in that screening procedure to provide reasonable assurance that maximum concentrations will not be underestimated."

Because the SCREEN3 Model is generally applicable to a single emission source, the source data of both dust collectors were combined, using the worst case stack characteristics. The location of the dust collector nearest the fenceline was used for the minimum impact distance. The results represent a prediction of maximum ambient air quality impacts from both emission sources. This approach greatly increases the inherent conservatism of the model because it assumes the maximum emissions from each dust collector originate together at the nearest stack location to the fence line and from the stack that provides the least amount of dispersion. The maximum impacts are then combined by the model at one receptor.

Modeled Emissions

For the modeling analysis, the flyash transfer terminal operations were calculated to have a maximum potential to emit PM₁₀ of 1.57 tons/year for both dust collectors. Several specific fugitive emission sources, such as storage piles and haul roads were modeled at 24 hours a day and 8,760 hours per year.

Source Data

The model input data is summarized in Table 4 below:

Table 4: Source Data for Pollutant Emissions Modeling

Emissions rate, both dust collectors summed:	0.045 g/s
Stack height of lower stack (i.e. DC-2):	6.1 m
Stack gas temperature:	293 degrees K
Stack inside diameter:	0.102 m
Stack gas velocity:	26.2 m/s
Distance to nearest receptor:	87 m
Dimensions of attached or nearby structures:	6.1 m (height), 6.1 m (minimum horizontal), 27.1 m (maximum horizontal)

C. NAAQS Analysis

Modeling was performed for criteria pollutants to determine if emissions from the CTI Leasing, Inc. facility would exceed the National Ambient Air Quality Standards (NAAQS). The results of the NAAQS analysis are presented in Table 5 on the next page.

Table 5: NAAQS Modeling Analysis Results

Pollutant	Averaging Period	Concentration (µg/m ³)			NAAQS (µg/m ³)	% Of NAAQS
		Modeled	Background	Total		
PM ₁₀	24-hour	75.5	33	108.5	150	72.3%
	Annual	24.9	16	40.9	50	81.8%

The modeled concentrations listed in Table 5 (under the "Total" column) are the maximum predicted impacts from CTI Leasing, Inc. at any location at or beyond the process area boundary.

Based on the modeling analysis results in Table 5, CTI Leasing, Inc. has demonstrated compliance with the NAAQS standards.

VII. LIST OF ABBREVIATIONS

A.A.C.....	Arizona Administrative Code
AAAQG.....	Arizona Ambient Air Quality Guidelines
CFR.....	Code of Federal Regulations
CO	Carbon Monoxide
EPA.....	Environmental Protection Agency
HAPs	Hazardous Air Pollutants
NAAQS.....	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
NSPS.....	New Source Performance Standard
PM.....	Particulate Matter at 100 microns or less
PM ₁₀	Particulate Matter at 10 microns or less
PTE.....	Potential to Emit
SO _x	Sulfur Oxides
VOC	Volatile Organic Compounds